

**Science GE DOK Alignment Chart      EARTH/SPACE SCIENCE      Grade 9-12      GE 50**

DOK Levels	GE Statement with Ceiling DOK	Science Concepts	Resources/Practice Items
<b>Enduring Knowledge:</b> Students demonstrate an understanding of natural resources and agricultural systems and why and how they are managed. This is evident when students:			
DOK 2-3	<ul style="list-style-type: none"> <li>Identify and analyze the impact of changes in Vermont's physiographic regions on natural/agricultural communities.</li> </ul> <p><b>GE Connection: S9-12: 36 AND</b></p>	<p>a. Vermont's environment is organized into six unique physiographic regions. (See "Nature of Vermont" resource.) Also--</p> <p><a href="http://academics.smcvt.edu/vtgeographic/extbook/physiographic/physiographic_regions_of_vermont.htm#physiographic_regions">http://academics.smcvt.edu/vtgeographic/extbook/physiographic/physiographic_regions_of_vermont.htm#physiographic_regions</a></p> <p>During the past 200 years these physiographic regions have undergone dramatic changes, which have impacted the availability and distribution of plant and animal species.</p>	<p>--Resource: "The Nature of Vermont"—Charles Johnson <a href="http://www.amazon.com/Nature-Vermont-Introduction-Environment-Mountain/dp/0874518563">http://www.amazon.com/Nature-Vermont-Introduction-Environment-Mountain/dp/0874518563</a></p> <p>--Students collect quantitative and qualitative data and trace the changes that have occurred in one of Vermont's physiographic regions and analyze the effect of these changes on the distribution and availability of plant and animal species.</p>
DOK 2-3	<ul style="list-style-type: none"> <li>Evaluate the importance of science and technology in optimizing the benefits and furthering understanding of natural/agricultural systems in Vermont.</li> </ul> <p><b>GE Connection: S9-12: 38 GE Connection: S9-12: 39 AND</b></p>	<p>b. Technology provides us with a variety of sophisticated information about the interrelationships and distribution of species and the synergistic effects of environmental disturbance.</p> <p>Humans use knowledge of science and technology, together with strategies of design, to solve practical problems to sustain or enhance natural/agricultural resources.</p>	<p>--Students conduct investigations to determine the effect of varying abiotic (pH, soil particle size) or biotic (introduced species) factors on the capacity of that environment to support natural/agricultural resources.</p> <p>--Students use sophisticated tools to analyze components of agricultural and natural (aquatic and terrestrial) communities (E.g. wetland, forest, lake pond, grassland, boreal) of a local physiographic region.</p>
DOK 2-3	<ul style="list-style-type: none"> <li>Evaluate the use of new technologies to support scientific principles and develop informed decisions about agricultural/ natural resource management issues.</li> </ul> <p><b>GE Connection: S9-12: 38 GE Connection: S9-12: 39 GE Connection: S9-12: 49</b></p>	<p>c. Technological advances have provided new (and controversial) methods in the development and management of Vermont's agricultural/natural resources.</p> <p>Technological problems and advances often create a demand for new scientific knowledge, and new technologies allow scientists to extend their research in new ways.</p>	<p>--Students prepare and deliver a news report on one example of how science and technology have been used to extend knowledge or solve a problem facing Vermont's natural resources/agricultural resource systems. (e.g. hardy species of wheat, genetic diversity to promote disease resistance, tracking wildlife behavior, mountain building processes)</p> <p>--Students review at least two different perspectives on the use of technology to sustain Vermont's natural or agricultural resource systems and justify their own position in an analysis paper. (E.g. wind farms, bioengineering, GMO issues)</p> <p>--Students prepare and conduct a debate on a controversial environmental issue related to technology use in sustaining Vermont's natural and agricultural systems (E.g. GMOs, wind farms).</p>